

3.5. Graphene

3.5a. The self-energy for a graphene contact

- (a) can in general be obtained by transforming to a basis that diagonalizes both α and β
- (b) cannot in general be obtained by transforming to a basis that diagonalizes both α and β
- (c) can be obtained using the relation $\Sigma = \tau g \tau^+$
- (d) both (a) and (c)
- (e) both (b) and (c)

3.5b. For large conductors the number of modes $M(E)$ for both graphene and carbon nanotubes is given approximately by the semiclassical relation

(ignoring spin)

- (a) $M(E) = 4 k(E)W / \pi$
- (b) $M(E) = k(E)W / \pi$
- (c) $M(E) = 2 k(E)W / \pi$
- (d) $M(E) = k(E)W / 2\pi$
- (e) $M(E) = k(E)W / 4\pi$